

A NEW SOURCE OF PROTEASES FOR LAUNDRY DETERGENT INDUSTRY

Brito, M. A^{1,2}; Mendes, C. M^{1,3}; Espósito, T. S¹; Bezerra, R. S³; Carneiro-da-Cunha, M. G^{1,3}.

¹Laboratório de Imunopatologia Keiso Asami (LIKA), UFPE, PE, Brazil; ²PIBIC-UFPE-PE, Brazil, ³Dept. Bioquímica, UFPE, PE, Brazil;

Proteases represent an important class of industrial enzymes. These proteins are present in Nile Tilapia viscera, a by-product of the fishery industries, usually discarded in large amounts. On the other hand, the digestive proteases from this fish represent an alternative source of enzymes for a detergent industry. This work describes the characterization of digestive proteases from their utilization as laundry detergent additive. A crude extract was obtained by homogenization of intestine from Nile Tilapia in 150 mM NaCl (1:12.5 w/v), centrifugation (10000 x g, 10 min, 4 °C), heat treatment (30 min, 45 °C) and then centrifugation again. An aliquot of this supernatant was then successively precipitated using ethanol (0-10%, 10-30%, 30-50%, 50-70%, 70-90%). Dialysis was carried out against 0,05 M Tris-HCl buffer pH 8.0 for 20 hours. The enzyme activity was developed using azocasein (1% w/v) as substrate. Proteases were partially purified in 10-30% Fraction, showing a purification factor and activity yield of 1.52 and 29.48, respectively. Optimum pH and temperature of these proteases was found to be 11.8 (0.2 M Glicine-NaOH buffer) and 55°C, respectively. Acting on BApNA they were inhibited by Benzamidine (87.3%), PMSF (4.3%) and TLCK (92.0%), whereas those hydrolyzing Suc-Phe-p-Nan were inhibited by TPCK (49.9%), but not by PMSF. The analysis suggests a possible use of this protease in laundry industry.

Key-words: industrial enzymes, protease, Nile Tilapia, additive detergent

Supported by: CNPq,